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Epidemiology and Control of Hypertension through a Community-Based Intervention

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Abstract: This paper centers on a epidemic disease which the Hypertension (high blood pressure) is a chronic disease that correlates the risk of getting serious cardio diseases, obesity, and diabetes etc. It's such a prevalent disease that many people have been diagnosed early in age because of unhealthy eating and living habits. It is well-established that hypertension, as the leading cause of many cardiovascular diseases, can be prevented or improved by community-based interventions. This study basically sums up existing public health strategies with analysis of advantages and drawbacks including living habits and medication, etc. Also, this study aims to investigate the feasibility of buildings patients and community workers networks through social media in monitoring and controlling hypertension. Motivated by working experience in a healthcare company, the study was made with the idea of the implication of social networking in the prevention of hypertension.

1. Public Health Problem

Hypertension is a chronic condition characterized by high blood pressure in the arteries. When blood pressure in the major vessels, such as arteries, rises, the blood vessel becomes less elastic and weaker, making it more difficult to maintain blood and oxygen flow from the heart to other organisms. High blood pressure can damage weak tissues in the arteries over time, causing cholesterol levels to drop and plaque to develop on the artery wall[1]. As the amount of plaque in the arteries accumulates, the arteries constrict, and blood pressure rises to an excessive level. If you look up hypertension on the internet, you'll learn that the conventional measurement is to take the systolic and diastolic pressures, which should be no more than 140mmHg and no less than 90mmHg, respectively. However, due to changes in modern culture and other circumstances, the American Heart Association has recently adjusted the diastolic pressure threshold to no less than 80mmHg and a systolic pressure of 130mmHg. Hypertension is a common condition that affects people all over the world. According to the CDC, hypertension affects 26 percent of the world's population, and tens of millions of Americans have excessive blood pressure[2]. 2018 (CDC) As individuals become older, the number of people diagnosed with hypertension rises, which explains why it's so common to encounter adults with high blood pressure. Furthermore, due of a lack of modern medical resources and unhealthy lifestyle habits, the situation is much worse in medium and low-income nations across the world.

Hypertension can be caused by a variety of variables, including lifestyle and etiological factors. Obesity and insulin resistance are etiological factors. Lack of physical exercise, excessive salt and sugar intake, high alcohol intake, and being stressed are all lifestyle variables. According to the research findings that have been made public thus far, lifestyle variables have a considerable impact on blood pressure[3]. The American Heart Association and the Centers for Disease Control and Prevention recommend that an adult take no more than 2300 mg per day to maintain an average blood pressure. Even a 500 mg salt decrease per day, on the other hand, can keep hypertension at bay. (American Heart Association, 2016) Unfortunately, because hypertension has no symptoms like other chronic conditions, it can easily develop to more serious cardiovascular problems if left untreated. Hypertension, for example, can lead to heart attack and stroke, the two leading causes of death in the United States. Because of the unpredictability and possible consequences of hypertension, those who do not obtain timely treatment are at a higher risk of developing other, more deadly and costly cardiovascular conditions. As a result, if the community's public health authorities are unable to assist citizens in controlling their blood pressure levels, it will be a difficult procedure for them to cope with numerous and serious ailments in the future[4].

2. How to Solve the Public Health Problem

A growing body of scientific evidence and research supports the use of antihypertensive medications to lower blood pressure and thereby treat hypertension. To lower blood pressure, more people are opting to use antihypertensive medicines. However, there is a persistent worry that antihypertensive medicines' theoretical advantages are not properly adopted and articulated in clinical practice at the community level. As a result, in 2010, a study was conducted to compare the outcomes of 72 different RCT interventions aimed at improving blood pressure control and clinic attendance, including self-monitoring, educational interventions targeted at patients, health professional-led care, and appointment reminder systems. Compare average SBP and DBP, blood pressure control, and groups of patients tracked by the clinic to assess outcomes. (2010, Glynn) This study demonstrates the need of having a well-organized and sophisticated system in place to track and monitor the status of patients in family practice and clinics. When the patient's blood pressure does not reach the target level, an active stepwise nursing strategy should be used for antihypertensive medicine therapy. Furthermore, self-monitoring and appointment reminders can be utilized to help regulate blood pressure, although there are still some unknowns[5]. The CDC also made a substantial contribution to the implementation of antihypertensive medicines in local clinics by campaigning for its 6 | 18 plan (which includes 18 evidence-based treatments) for six prevalent and costly health disorders. 2018 (CDC).

In America, 75 million people have hypertension, and 57 million of them are taking blood pressure medicine, yet only half of them have their blood pressure under control. As a result, the CDC has launched its 6|18 initiative, which tries to improve people's adherence to medications such as hypertension meds and lipid-lowering prescriptions. Lower drug copayments, fixed-dose medication combinations, a longer prescription fill supply, new medication packaging, and systemized care coordination with primary care teams are among the initiatives. These initiatives are assisting hypertension patients in gaining increased access to antihypertensive medicines while reducing the financial burden. These two initiatives look at how public health staff and patients dealt with hypertension and how they used antihypertensive medicines to regulate their blood pressure. However, in addition to taking medicines, maintaining one's blood pressure requires a healthy lifestyle. As a result, it's critical to establish an atmosphere that encourages patients to stick to their medications and engage in good lifestyle habits in order to prevent more individuals from developing hypertension.

Hypertension has risen to become one of the world's leading killers in the last century, claiming an untold number of lives. As a result, several governments found out the problem and took steps to avoid hypertension. Japan is one of the countries with the longest lifespans and longevity in the world, according to the study. (2011, Miura) Low blood pressure can't be entirely explained by taking antihypertensive medicines, according to researchers, but it can be explained by changing one's lifestyle. In 2011, a research in Japan looked at the link between blood pressure, cardiovascular risk, mortality, and lifestyle variables. Reduced salt consumption was shown to be the most important factor in Japan's health.

In 1960, the Japanese government launched a nationwide effort to encourage people to consume less salt. As a consequence, the National Nutrition Survey found that Japanese people's daily salt intake has fallen by 3.8 grams. From 14.5 g in 1973 to 10.7 g in 2009, the numbers have decreased. The Japanese used less soy and miso in their everyday diet but adopted a western eating habit as a result of their society's westernization. We may deduce from Japan's prior experience with hypertension that lifestyle variables play a crucial role in avoiding hypertension. Other countries should benefit from the Japanese government's measures to reducing hypertension in the future. Aside from Japan, the Canadian government has a lot of expertise with hypertension prevention. In the past, the Canadian government published a yearly guideline for the diagnosis, risk assessment, prevention, and treatment of hypertension in adults and children, with the goal of improving the public health system and raising public awareness about hypertension. (2018, Nerenberg). According to the 2018 hypertension recommendations, health care practitioners should regularly check all community members' blood pressure to detect possible cardiovascular risk; weight loss should also be included in community measurements of hypertension, such as BMI level; and The recommendations also recommend a low-sodium daily diet and moderate alcohol consumption.

3. Public Health in the Future

Although hypertension is not as severe or lethal as other cardiovascular disorders such as stroke, it is a very regular occurrence that it is simple to relapse once you believe you have it under control. That is why we, as public health professionals, must devise a strategy to avoid the recurrence of hypertension. The key to preventing recurrence of hypertension, according to the CDC, is to maintain a healthy lifestyle that includes regular physical activity, a nutritious food, and a healthy body weight. 2018 (CDC) Taking antihypertensive medications does not eliminate the danger of hypertension for the rest of one's life; it only helps momentarily. A healthy lifestyle, on the other hand, would aid the patient in avoiding hypertension as well as other dangerous ailments. A hypertension patient can use the DASH eating plan to choose a daily meal that is high in potassium, fiber, and protein while being low in saturated fat and salt. The American Physical Activity Guidelines recommend at least 2 hours and a half of moderate activity each week, such as jogging or bicycling. According to the Centers for Disease Control and Prevention, getting adequate sleep and drinking less alcohol are critical for regulating blood pressure and avoiding heart disease. Participation in the community's follow-up blood pressure monitoring program prevents the return of hypertension, in addition to establishing a healthy living habit.

The incidence of recurrent stroke is lowered when DBP is kept at 95 mm Hg or even 80 mmHg, according to a 2002 research. Patients who actively engaged in the community follow-up monitor also had a decreased chance of hypertension recurrence, according to the study. (Gary, 2002)

In my opinion, community-based monitoring, which includes a blood pressure measurement device, will be critical in the future. Public health practitioners, for example, should give frequent blood pressure testing in the community, particularly for elderly. They should keep track of each individual at risk's health and communicate that information with local health officials so that they

can give prompt medical attention if the situation worsens. Community workers should also seek to improve people's awareness of hypertension in their communities by providing free workshops with gift cards to encourage more people to attend. During the course, health care providers might present some practical hypertension information and techniques to encourage participants to self-monitor their blood pressure.

Considering the difficulties of cultivating a healthy lifestyle by patients themselves, especially in the elderly with low self-control ability, forming a social network with patients and public health professionals promotes the formation of a hortative and supportive community. When I was worked as an intern at AposHealth, which is a medical company that helps patients with osteoarthropathy and gait problems with shoe shaped devices, I worked under the Media promotion and marketing department, I found that for the 20 patients with knee osteoarthritis, 14 of them have developed hypertension and 85% of those with high blood pressure were aged 65 or over 65. Hypertension has become such a common chronic disease in our daily lives—one of the most common comorbidities that unconsciously adversely impact our bodies. However, I found the dramatic influence of setting up a community on social media. For each patient using the Apos technique to alleviate their pain in the knee or hip, we asked them to join the community we built online. By reporting their daily usage and problems, our professional therapists could respond as soon as possible and provide feedback.

Moreover, the incentive mechanism applied in the community encourages the interaction between patients to supervise and encourage each other. Considering the characteristics of hypertension, a chronic disease quickly brings about other complications. A long-term attempt to control blood pressure through behavior change such as keeping a healthy diet with low sodium intake and proper physical activity level is necessary for patients suffering from high blood pressure. While many people acknowledge the benefits of having a healthy lifestyle, majority of them can't really make it to actual practice. This situation could be significantly improved through this community-based intervention as patients-and-physicians' networking is being actively used.

Finally, many studies have proved the effectiveness of the community-based intervention to alleviate the burden of hypertension through provocative home visits by trained community health workers. (Tazenn, 2020) As social media has become an indispensable part of our life, I believe that building a positive communication environment online should be implemented with traditional community practice at the same time to meet the best outcome. Public health practitioners should also consider the benefits of such community-based intervention and apply similar promotion programs to the population with different types of chronic diseases.

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